

### REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 1, 10, 12 and 14 have been amended. New claim 15 has been added. No new matter has been added. Support for the amendments to claims 1, 12 and 14 can be found at least in figures 16 and 17, and the text describing these figures. The amendment to claim 10 is to improve its grammar, and does not narrow its scope.

This amendment adds and changes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1-15 are now pending in this application.

#### ***Rejection under 35 U.S.C. § 102***

Claims 1-14 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,881,703 to Nankes, II et al. ("Nankes"). Applicants respectfully traverse this rejection for at least the following reasons.

Claim 1, as amended, recites "wherein, in each of the estimating operations, the controller calculates the estimated component concentration by using a characteristic in which the estimated component concentration is increased in proportion to an air-fuel ratio correction quantity which is determined from the air fuel ratio." Thus, in the fuel estimating apparatus of claim 1, the estimated component concentration is calculated by using a characteristic in which the estimated component concentration is increased in proportion to an air-fuel ratio correction quantity which is determined from the air fuel ratio. Nankes fails to disclose or suggest at least this feature of claim 1.

Nankes discloses inferring the alcohol percentage in fuel by using a fuel consumption multiplier (col. 4, lines 50-52). The fuel consumption multiplier is based on an exhaust stream oxygen sensor feedback variable (col. 4, lines 55-56).

While Nankes discloses inferring the alcohol percentage based on an exhaust stream oxygen sensor feedback variable, nowhere does Nankes disclose or suggest estimating the alcohol percentage, where the alcohol percentage estimate increases in proportion to an air-fuel ratio correction quantity determined from the air fuel ratio. Thus, Nankes fails to disclose calculating an estimated component concentration by using a characteristic in which the estimated component concentration is increased in proportion to an air-fuel ratio correction quantity which is determined from the air fuel ratio, as recited in claim 1. Nankes fails to anticipate claim 1 for at least this reason.

Independent claims 12 and 14 respectively recite “wherein, in each of the first and second estimating operations, the estimated component concentration is calculated by using a characteristic in which the estimated component concentration is increased in proportion to an air-fuel ratio correction quantity which is determined from the air fuel ratio”, and “wherein, in each of the first and second estimating operations, the estimated component concentration is calculated by using a characteristic in which the estimated component concentration is increased in proportion to an air-fuel ratio correction quantity which is determined from the air fuel ratio.” Thus, claims 12 and 14 are patentable for reasons analogous to claim 1.

New claims 15 recites “calculate the estimated component concentration from the air-fuel ratio correction coefficient at each of the first and second timings so as to increase the estimated component concentration with an increase in the air-fuel ratio feedback correction coefficient, by using a characteristic having a dead band to hold the estimated component concentration substantially constant without regard to variation in the air-fuel ratio correction quantity in a predetermined region of the air-fuel ratio correction quantity.” Nankes fails to disclose or suggest this feature of claim 15, and claim 15 is patentable thereover.

The dependent claims are patentable for at least the same reasons as their respective independent claims, as well as for further patentable features recited therein.

Applicant believes that the present application is now in condition for allowance.  
Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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